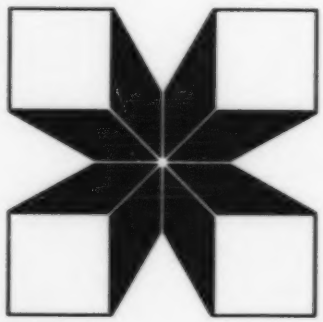
IDRC
CRDI
CIID



CANADA

The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support research designed to adapt science and technology to the needs of developing countries. The Centre's activity is concentrated in six sectors: agriculture, food and nutrition sciences; health sciences; information sciences; social sciences; earth and engineering sciences; and communications. IDRC is financed solely by the Parliament of Canada; its policies, however, are set by an international Board of Governors. The Centre's headquarters are in Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.

Le Centre de recherches pour le développement international, société publique créée en 1970 par une loi du Parlement canadien, a pour mission d'appuyer des recherches visant à adapter la science et la technologie aux besoins des pays en développement; il concentre son activité dans six secteurs : agriculture, alimentation et nutrition; information; santé; sciences sociales; sciences de la terre et du génie et communications. Le CRDI est financé entièrement par le Parlement canadien, mais c'est un Conseil des gouverneurs international qui en détermine l'orientation et les politiques. Établi à Ottawa (Canada), il a des bureaux régionaux en Afrique, en Asie, en Amérique latine et au Moyen-Orient.

El Centro Internacional de Investigaciones para el Desarrollo es una corporación pública creada en 1970 por el Parlamento de Canadá con el objeto de apoyar la investigación destinada a adaptar la ciencia y la tecnología a las necesidades de los países en desarrollo. Su actividad se concentra en seis sectores: ciencias agrícolas, alimentos y nutrición; ciencias de la salud; ciencias de la información; ciencias sociales; ciencias de la tierra e ingeniería; y comunicaciones. El Centro es financiado exclusivamente por el Parlamento de Canadá; sin embargo, sus políticas son trazadas por un Consejo de Gobernadores de carácter internacional. La sede del Centro está en Ottawa, Canadá, y sus oficinas regionales en América Latina, Africa, Asia y el Medio Oriente.

This series includes meeting documents, internal reports, and preliminary technical documents that may later form the basis of a formal publication. A Manuscript Report is given a small distribution to a highly specialized audience.

La présente série est réservée aux documents issus de colloques, aux rapports internes et aux documents techniques susceptibles d'être publiés plus tard dans une série de publications plus soignées. D'un tirage restreint, le rapport manuscrit est destiné à un public très spécialisé.

Esta serie incluye ponencias de reuniones, informes internos y documentos técnicos que pueden posteriormente conformar la base de una publicación formal. El informe recibe distribución limitada entre una audiencia altamente especializada.

91-06180/

IDRC-MR291e
June 1991

Community-based and traditional fisheries management in Africa

A selected annotated bibliography

T.R. Brainerd (Compiler)
IDRC consultant

Material contained in this report is produced as submitted and has not been subjected to peer review or editing by IDRC Communications Division staff. Unless otherwise stated, copyright for material in this report is held by the author. Mention of a proprietary name does not constitute endorsement of the product and is given only for information.

TABLE OF CONTENTS

		Page
ACKNOWLEDGEMENTS		ii
FOREWORD		iii
1.	Introduction	1
2.	Abbreviations for Organizations and Institutions	3
3.	Abbreviations for Water Bodies	4
4.	Bibliography (African)	5
5.	Geographic Index	32
6.	Water Body Index	35

ACKNOWLEDGEMENTS

The author wishes to thank all those who provided assistance for the compilation of this bibliography. Special thanks go to Ms. C. Cuerden and Ms. D. Saluzzi of the FAO Fisheries Library in Rome.

All responsibility for the correctness and accuracy of the entries in this bibliography rests with the author.

FOREWORD

Population expansion in Africa has led to increased pressure for employment in most economic sectors. Fisheries is a particularly attractive sector because of the generally low entry cost. Steadily increasing effort has resulted in overexploitation of many stocks. Fisheries management has thus become a crucial issued.

Fisheries management is a many faceted endeavour. It is political because it concerns the exercising of a controlling, restraining and/or ordering power over users of the resource -- which immediately calls into question who should be the custodian of this power. It is social because it deals with human communities, organizations and ultimately individuals -- their customs, beliefs, ethics and aspirations. IT is economic because it should ideally attempt to maximize output benefits, minimize input costs and eliminate waste. It is biological because it deals with a complexly dynamic living resource, the fish stock, whose behaviour and yield is only approximately predictable. It is technical because there is usually a choice to be made among different fishing methods, some of whose impacts on stock vitality and sustainability are decidedly negative. It is legal because management powers and practices normally become incorporated into national legislation and/or customary law.

Rational and effective fisheries management is difficult to achieve. Globally, there are many more examples of poor or ineffective fisheries management than there are of effective management. Successful management would appear to have two principal characteristics:

1) The cost of management is less than the gross benefit derived. The greater the net benefit, the more efficient the management is in an economic sense.

2) Management actions require the support of the fishery resource user group. The more active the participation of users the greater the effectiveness. Exclusion of users from management promotes a continuous low-intensity conflict between users and enforcers.

Historically, many African fisheries have benefitted from direct community management, through village political structures and instruments of various types. More recent attempts to install Western-type central administration fisheries management regimes have not been particularly effective. In addition, high costs have often made sustainability of operations untenable. The quest for cost effective management necessitates reassessment of "traditional" or community-based fisheries management in Africa. Given a rich historical precedent, and many effective surviving examples, there exists much potential for evolving uniquely African management modalities which are acceptable to fishing communities and do not seek to disempower them. This annotated bibliography ha been prepared to provide access to literature on community-based management for fisheries administrators,

researchers and extension workers who are concerned with improving management efficiency.

Garry M. Bernacsek
IDRC Fisheries Programme Officer (Africa and Middle East)

1. INTRODUCTION

Community-based and traditional fisheries management in Africa dates back to ancient times when elders, fishworkers and other interested groups decided collectively on who should have the authority to formulate and enforce rules and guidelines for the exploitation of the fisheries resources adjacent to, or within their locality for the welfare of all concerned. Everyone was expected to adhere to the rules and guidelines. Such practices seemed to have worked well in most cases due to the participation, trust and compliance of all those concerned.

In recent times, these practices have given way to more conventional (scientific) methods of fisheries management. Various management models have been proposed and implemented for different fisheries. However, few have achieved any measure of success in Africa. Most of these models did not consider the merits of the traditional methods and were designed and implemented by officials who were for the most part, far removed from the day to day activities of the fishworkers.

Many scientists, fisheries managers and policy makers now believe that fisheries management plans should have the approval and participation of the groups whose activities they are supposed to regulate. This is reflected in the recent approach of small-scale fisheries projects in West Africa, integrating and involving the various groups in all aspects of the projects' activities. As this process gathers momentum, the need to assess the merits of community-based and traditional fisheries management practices and how best they could be incorporated into more contemporary fisheries management models become crucial.

The primary aim of this report is to compile a bibliographic list of community-based and traditional fisheries management in Africa. Community-based and traditional fisheries management is defined for the purpose of this bibliography, as any fisheries management measures or practices that are carried out by groups or individuals who are actually involved in the harvesting, distribution and marketing of fish to ensure that their economic and social well being, and the renewable nature of the fisheries resources are preserved.

A fairly extensive literature on fisheries management in Africa currently exists and a number of bibliographies have been published. However, not much effort has been devoted to compiling a bibliographic list specifically on community-based and traditional fisheries management in Africa. It is hoped that the current list will spark off more interest in this special subject and that scientists, fisheries managers, policy makers and others involved in fishery management activities will find it useful. The list is by no means exhaustive. A thorough search was done at the

FAO Library, the URI Library and with the author's personal collections. These included reports, journals, abstracts, data bases, other bibliographies, dissertations, etc.

The bibliographic list is not limited to any specific period. Entries extend from 1934 to 1989. Most of the entries were obtained from original publications and reprints. Some were obtained from secondary sources and effort was made to verify the accuracy of the information provided. Each entry is listed alphabetically by author and indexed by geographic area and water body for ease of use. Most of the entries have annotations describing in a general way, what each one contains.

During the search process, a number of papers were discovered that were general in the sense that they do not refer to any African fishery, but deal with community-based and traditional management of fisheries at the global level. These were also included in the list. There were some that pertained to other non-African developing countries. These were included in a separate section with the hope that they will supplement the African entries.

Finally, the following are the key references included in the bibliography:

(a) General: these do not refer to any specific fishery, but usually cover the spectrum of small-scale fishery (including marine, freshwater and aquaculture);

(b) Coastal/Marine: these references are mainly on scattered coastal fishing settlements;

(c) Inland/Freshwater: these are non-specific on the types of water bodies and usually cover all inland water bodies. The others are: Rivers, Lagoons and Estuaries.

2. ABBREVIATIONS FOR ORGANIZATIONS AND INSTITUTIONS

CECAF: Committee for Eastern Central Atlantic Fishery

CERA: Centre d'Études et de Recherches Appliquées

CIDA: Candian International Development Agency

CIFA: Committee for Inland Fisheries of Africa

CRO: Centre de Recherches Océanographique, Côte d'Ivoire

CRODT: Centre Recherches Océanographique de Dakar-Thiaroye, Senegal

ECAF: Eastern Central Atlantic Fisheries

FAO: Food and Agriculture Organization, United Nations

GFCM: General Fisheries Council for the Mediterranean

ICLARM: International Centre for Living Aquatic Resources Management, Philippines

ICMRD: International Center for Marine Resource Development, URI

IDAF: Programme for Integrated Development of Artisanal Fisheries in West Africa

IDRC: International Development Research Center, Canada

IPAD: Institut Pan Africain pour le développement

ISRA: Institut Sénégalais de Recherches Agricoles

ISSER: Institute of Statistical, Social and Economic Research, University of Ghana, Legon

SADCC: Southern African Development Coordination Conference

UNESCO: United Nations Educational, Scientific and Cultural Organization

URI: University of Rhode Island, USA

3. ABBREVIATIONS FOR WATER BODIES

BS: Bays

CM: Coastal/Marine

CR: Coral Reefs

DL: Deltas

ES: Estuaries

FP: Flood Plains

GL: General

IA: Inland/Aquaculture

IF: Inland/Freshwater

LG: Lagoons

LK: Lakes

RV: Rivers

SW: Swamps

WL: Wetlands

4. BIBLIOGRAPHY (AFRICAN)

A

1. Anderson, A. 1987. The development and management of small water bodies. CIFA/87/Symp./5. FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small water Bodies. Accra, Ghana. 7-8 Dec. 1987.

   Paper suggests that governments should not always attempt to regulate small river systems of inland Africa, but should consider encouraging and strengthening traditional management practices.

   Geographic: Africa
   Water Body: IF

2. Anon. 1986. Report of FAO/CECAF/IDAF Workshop on Small-Scale Fisheries Development and Management. CECAF/TECH/86/68, Lome, Togo. 20-29 Nov. 1985.

   The report suggests that one management tool for artisanal fisheries is to allocate ownership or management responsibilities to fishing communities.

   Recommends that traditional fishing rights should be studied with a view to their rehabilitation and where possible improvements should be encouraged.

   Geographic: Africa
   Water Body: CM

3. Anon. 1979. Role of fishery technology in management and development of freshwater fisheries in Africa.
   CIFA Technical Paper No. 6. FAO, Rome.

   Discusses improvement of fishing techniques in relation to traditional fisheries management and development.
   Outlines the role and limits of technology.

   Geographic: Africa
   Water Body: IF

4. Ben-Yami, M. 1983. Fisheries organizations and their special needs. NIR/77/001. FAO, Rome (Memeo.).

Discusses the role fishermen's organizations can play in community-based fisheries management.

Geographic: Global
Water Body: GL

5. Bernacsek, G. M. 1988. Improving development projects in Africa. Prepared for the World Symposium on Fishing Vessel and Gear Design. St. John, Newfoundland, Canada. Nov. 1988.

Outlines some of the factors that contributes to the ineffectiveness of most centrally-based fisheries management schemes. Cautions that community-based fisheries resource management should account for changing demographic conditions for them to be effective.

Geographic: Africa
Water Body: GL

6. Bernacsek, G. M. 1987. Policy options for development of the fisheries sector in Africa. FAO, Rome (Draft).

Outlines the basic differences between "traditional" and "western" management systems and advocates for the transfer of management responsibility to fishing communities.

Geographic: Africa
Water Body: GL

7. Berron, H. 1980. Tradition et modernisme en pays lagunaires de base Côte d'Ivoire (Ivoirens et étrangers). Ophrys, France.

Describes the traditional fisheries management practices and the commercialization of fisheries in the lagoons.

Geographic: Côte d'Ivoire
Water Body: LG

8. Black-Michaud, J. and J. Johnson. 1985. Community participation in integrated small-scale fisheries projects. In: FAO Fisheries Report No. 360. FAO, Rome. pp. 62-76.

Examines the benefits from, and the requirements for a successful participatory approach in small-scale fisheries development projects with emphasis on managing the resources.

Geographic: Africa
Water Body: GL

9. Brelsford, W. V. 1946. Fishermen of the Bangweulu Swamp: A study of the fishing activities of the Unga tribe. Rhodes-Livingstone papers, 12.

Geographic: Zimbabwe
Water Body: SW

C

10. Chaika, J. J. 1980. Perspectives on the management of Sarotherodon traditional fisheries in the southern arm of Lake Malawi, Lake Malombe and the linking Upper Shire River. CIFA Technical Paper No. 8. FAO, Rome.

Describes the various traditional management regulations used to protect spawning and juvenile stocks.

Geographic: Malawi
Water Body: LK/RV

11. Chauvet, C. 1983. La pêcherie du Lac de Tunis. Biologie des pêches et relèvement de la production par des voies autres que la réglementation. FAO/GFCM Expert Consultation on the Management of Coastal Lagoon Fisheries. FAO, Rome.

Describes two possible "paths" for management policy and suggests that there should be coordination of the management of the sea access channels with traditional fishing in the lagoons.

Geographic: Tunisia
Water Body: LK/LG

12. Chondoma, E. C. and B. J. T. Mokhohlane. 1986. Riverine fishery management and conservation of genetic material. SADCC Regional Aquaculture Workshop. Dar-Es-Salaam, Tanzania. Dec. 1986.

Geographic: Southern Africa
Water Body: RV

13. Christensen, J. B. 1982. Problems resulting from technological change: the case of the Fanti fishermen in Ghana. In: Modernization and Marine Fisheries Policy. J. R. Maiolo and M. K. Orbach (eds.). pp. 249-278.

Presents the historical and cultural perspectives of the contemporary Fanti canoe fishing industry, including the nature of the fishing community, fishing techniques, management practices, methods of financing and fish distribution.

Geographic: Ghana
Water Body: CM

14. Christy, F. T. Jr. 1986. Special characteristics and problems of small-scale fisheries management in developing countries. In: Natural Resources Economics and Policy Applications. E. Miles, R. Pealy and R. Stokes (eds.). University of Washington Press, Seattle, Washington. pp. 118-151.

Geographic: Global
Water Body: GL

15. Christy, F. T. Jr. 1983. Territorial use rights in marine fisheries: definition and conditions. FAO Fisheries Technical Paper No. 227. FAO, Rome.

Geographic: Global
Water Body: GL

16. Cordell, J. C. 1981. Self-reliant conservation of small- scale fisheries. In: Environment, Oct., 1981.

Geographic: Global
Water Body: GL

17. Cory, H. and M. M. Hartnoll. 1970. Customary law of the Haya tribe; Tanganyika territory. Negro University Press. Westport, Connecticut, USA.

Geographic: Tanzania
Water Body: CM

D

18. Diaw, c. 1986. Gestion des unités de pêche et rapports de production; la portée théorique et pratique du système de parts. In: L'Estuaire de La Casamance: Environnement, Pêche, Socio-économique. L. Le Reste, A. Fontana, and A. Samba (eds.). ISRA/CRODT, Dakar, senegal. pp. 203-205.

Geographic: Senegal
Water Body: GL

19. Diaw, C. 1983. Social and production relationship in the artisanal maritime fisheries of West Africa: a comparative analysis. Unpublished master thesis. University of Michigan, USA.

Geographic: West Africa
Water Body: CM

20. Dikoume, C. 1976. La pêche artisanale maritime et ses implications sociologiques sur la société Yakalak, en Basse Sanaga. Rapport sommaire provisoire et partiel des études menées dans la région de Mouanko. CERA, IPAD. Douala, Cameroun.

Geographic: Cameroun
Water Body: CM

21. Dowuona, V. 1982. The role of traditional fishing in Ghana: a case study of Teshie. Unpublished dissertation. University of Ghana, Legon.

Geographic: Ghana
Water Body: CM

22. Duckworth, E. H. 1951. A visit to the apostles and the town of Aiyetoro; describing how a small group of African fishermen with vision and faith have created a new town and pioneered a new and improved way of life on the coast of Nigeria. In: Nigeria, 36: pp. 387-440.

Geographic: Nigeria
Water Body: CM

F

23. Fortes, M. 1937. Communal fishing and fishing magic in the northern territories of the Gold Coast. In: Manual of the Royal Anthropological Institute of Great Britain and Ireland, 67: pp. 131-142.

Geographic: Ghana
Water Body: IF

24. Fosbrooke, H. A. 1934. Some aspects of the Kimwani fishing culture, with comparative notes on alien methods (Lake Victoria Nyanza, Tanganyika Territory). In: Journal of the Royal Anthropological Institute of Great Britain and Ireland, LXIV: pp. 1-22.

Geographic: Tanzania
Water Body: LK

25. Frank, V. G. 1987. Manuel sur la gestion et l'administration des pêcheries artisanales des eaux continentales Africaines. CIFA/87/Symp./1. FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

The paper examines all phases and elements related to the implementation of fisheries development programme in small water bodies using the Ithema Fishery Project (Rwanda) as a case study. Management measures are given special attention.

Geographic: Rwanda
Water Body: IF

26. Gallais, 1958. La vie saisonnière au sud du Lac Debo (Territoire du Soudan). In: Cabiers d'Outre-Mer, 11:42, pp. 117-141.

Geographic: Sudan
Water Body: LK

27. Gerlotto, F. and F. Verdeaux. 1980. Évolution et impact socio-économique à travers l'exemple de la pêche en lagune en Côte d'Ivoire. In: Peche Maritime, 1222: pp. 27-34.

Distinguishes two modes of artisanal fisheries: individual and collective, according to four criteria. The relations with the environment, sociological characteristics of the different categories of fishermen including management practices, the yield of fishing gear and its rentability.

Geographic: Côte d'Ivoire
Water Body: LG

28. Gladwin, H. 1970. Decision making in the Cape Coast (Fante) fishing and marketing system. Unpublished Ph.D. dissertation. Stanford University, USA.

Geographic: Ghana
Water Body: CM

29. Gordon, C. 1987. Fisheries in small water bodies: the case of the Amansuri Wetlands, Ghana. CIFA/87/SYMP./8 FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Describes how fishing intensity and methods are controlled by traditional beliefs and taboos. Argues that these limit the exploitation of the wetlands and have helped maintain the fishery.

Geographic: Ghana
Water Body: WL

H

30. Harris, P. 1945. The Kebri Fishermen, Sokoto Province, Nigeria. In: Journal of the Royal Anthropological Institute, LXXII: pp. 23-31.

Geographic: Nigeria
Water Body: RV

31. Hata, N. 1968.Ndagaa fishing and settlement formation along Lake Tanganyika. Kyoto University African Studies, 2: pp. 31-50.

Geographic: East Africa
Water Body: LK

32. Hendrix, M. K. 1984. Technical change and social relations in a West African maritime fishery: a development history. ICMRD Working Paper No. 21. URI, USA.

Examines the socio-economic organization and technological changes over time with respect to the Tombo Village Fishermen in Sierra Leone. Reviews pre-colonial fishing activities in the West Atlantic coastal region (Upper Guinea Coast).

Geographic: Sierra Leone/ West Africa
Water Body: CM

33. Hie Dare, J. P. n.d. Étude sur l'aménagement des pêches sur La Lagune Tagba (Côte d'Ivoire). CRO, Abidjan, Côte d'Ivoire.

Geographic: Côte d'Ivoire
Water Body: LG

I

34. Ineichen, B. 1967. Bugoto: a fishing community on MacDonald Bay, Busoga. In: Uganda Journal, 31:2. pp. 201-205.

Geographic: Uganda
Water Body: BS

J

35. Jacquemond, S. 1959. Les Pêcheurs de la Boucle de Niger. Ministère de l'Éducation nationale, France. Comité des Travaux Historiques et Scientifiques. Section de Géographie, Bulletin 71. pp. 103-156.

Geographic: Niger
water Body: RV

36. Jeay, A. M. 1987. Droits traditionnels versus législation moderne et recommandations pour une gestion rationnelle des ressources de la pêche: le cas des Somono du Moyen Niger (Mali). CIFA/87/SYMP./22. FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Describes traditional fishery management practices under the kings of Segou and the present fishery legislation. Recommends that management and exploitation of the fisheries should be left with the fishing communities.

Geographic: Mali
Water Body: RV

37. Jentoft, S. 1989. Fisheries co-management: delegating government responsibility to fishermen's organizations. In: Marine Policy, 13:2, April 1989. pp. 137-154.

Addresses the role of cooperative organizations in fisheries management and the extent to which fishermen's organizations are capable of handling regulatory functions.

Geographic: Global
Water Body: GL

K

38. Kapetsky, J. M. 1981. Some considerations for management of coastal lagoon and estuarine fisheries. FAO Fisheries Technical Paper No. 218. FAO, Rome.

Three broad categories of management practices are considered: regulatory, non-regulatory and interactions between fisheries of fishery interests. Advocates for the revitalization of local traditional authority as a means to complement or supplement management by central government authority.

Geographic: Global
Water Body: LG/ES

39. Kapetsky, J. M. 1981. The artisanal fishery of coastal lagoons and estuaries in the CECAF region: their importance relative to other fisheries and some considerations for their management and development. CECAF/TECH/81/36. Dakar, Senegal.

Discusses regulatory management through enchancement of traditional controls on fishing.

Geographic: West Africa
Water Body: LG/ES

40. Kebe, M. 1984. Système d'information pour l'aménagement et le développement des pêcheries artisanales du Maroc, de Côte d'Ivoire, du Nigeria et du Senegal. Rapport de Consultation pour la FAO. FAO, Rome (Draft). 22 Oct. - 5 Nov. 1983.

Geographic: Côte d'Ivoire/Morocco/Nigeria/Senegal
Water Body: CM

41. Kebe, M. 1984. Aménagement et planification des pêcheries intérieures des pays francophones d'Afrique de l'Ouest. Rapport de Consultation pour la FAO. FAO, Rome (Draft). 22 Oct. - 5 Nov. 1983.

Geographic: West Africa
Water Body: IF

42. Kesteven, G. L. 1987. If I don't, someone else will. In: NAGA, The ICLARM Quarterly, 10:4, Oct. 1987. pp. 13-14.

Affirms that fishermen's behaviour with regard to conservation is guided by their knowledge and the expected benefits from the resources. Advocates for their participation in the formulation of regulatory measures to ensure their cooperation.

Geographic: Global
Water Body: GL

43. Kone, F. A. 1985. Traditional fishing rights in the central delta of the Niger and lake region: conflicts and recommendations with a view to equitable and rational management of fishery resources. In: FAO Fisheries Report No. 360. FAO, Rome. pp. 95-103.

Discusses the effects of drought and the abolition of customary fishing rights on fish catches in the Niger delta. Recommends a review of fishery legislation and the preparation of a fishery and water management plan.

Geographic: Niger
Water Body: RV/LK

44. Kotnik, A. 1982. Women in small-scale fisheries: the case of Tombo Village/Sierra Leone. Contribution of the Republic of Sierra Leone and the Federal Republic of Germany Promotion of Small-Scale fisheries No. 2, Sierra Leone.

Presents a socio-economic analysis of the role of women in Tombo focusing on the traditional system of management, obligations, rights, and responsibilities; as well as the pattern of social behaviour prevalent in the village.

Geographic: Sierra Leone
Water Body: CM

45. Kurien, J. 1987. Knowledge systems and fishery resource decline: a historical perspective. Presented at the Fourth International Congress on the History of Oceanography, Hamburg (Mimeo.).

Geographic: Global
Water Body: GL

46. Kuromiema, P. E. A. 1971. Fishing communities of the Eastern Delta. University of Ibadan Press. Ibadan, Nigeria. 29: 67-75.

Geographic: Nigeria
Water Body: RV/DL

L

47. Laleye, P. A. 1985. Contribution à l'organisation de la Pêche Maritime Artisanale en R.P.B. (People's Republic of Benin): mode de vie des pêcheurs et systèmes d'exploitation. UNBFSA.

Geographic: Benin
Water Body: CM

48. Lawson, R. 1988. Artisanal fisheries management (letter to the editor). In: Marine Policy, 12:2, April 1988. p. 165.

Refutes the claim in Christopher Dahl's article (Marine Policy, 12:1, Jan. 1988) that "there have been few attempts to analyze specific traditional marine tenure systems to understand how they function" and refers the author to the paper by R. Lawson and M. A. Robinson, In: Marine Policy, 7:4, Oct. 1983.

Geographic: Global
Water Body: GL

49. Lawson, R. M. 1958. The structure, migration and resettlement of Ewe fishing units. In: African Studies, 17:1. pp. 21-27.

Geographic: Ghana
Water Body: CM

50. Lawson, R. and M. A. Robinson. 1983. Artisanal fisheries in West Africa: problems of management implementation. In: Marine Policy, 7:4, Oct. 1983. pp. 279-290.

Discusses the relevance and effectiveness of management measures for West African artisanal fisheries. Measures such as changes in the supply of competing protein, imports, indirect control through the fish market and management through traditional institutions are discussed.

Geographic: West Africa
Water Body: GL

51. Lawson, R. and M. A. Robinson. 1983. The needs and possibilities for the management of canoe fisheries in the CECAF region. CECAF/TECH/83/47. Dakar, Senegal

Describes the conventional and traditional methods of fishery management and their practical application to artisanal fisheries. The fisheries organization in the traditional sector in Ghana is described in the appendix.

Geographic: West Africa/Ghana
Water Body: GL

52. Lema, R. 1987. Minor water bodies fisheries development and management in Tanzania. CIFA/87/SYMP./19. FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Describes the development strategies oriented toward more rational exploitation, improved equipment and participatory management methods.

Geographic: Tanzania
Water Body: IF

53. Luginbuehl, N. 1986. Les problèmes de l'aménagement des pêches en Côte d'Ivoire et leurs implications régionales avec référence spéciale à la pêche artisanale. Unpublished thesis. Institut Université des Hautes Études Internationale. Geneva, Switzerland.

Examines both traditional and government management practices for increasing production and improving fishermen's social condition.

Geographic: Côte d'Ivoire
Water Body: GL

M

54. Mabaye, A. B. E. 1987. Some management aspects and constraint in the Lake Kariba Fishery. In: NAGA, The ICLARM Quarterly, 10:4, Oct. 1987. pp. 10-12.

Outlines the measures taken to manage the Lake Kariba Fishery and the problems encountered.

Geographic: Zambia/Zimbabwe
Water Body: LK

55. Maembe, T. W. 1985. The fisheries management of eight African lakes. In: FAO Fisheries Report No. 360. FAO, Rome. pp. 43-51.

Considers the most pressing problems for fisheries management and development in each of eight African lakes: Lakes Tanganyika, Malawi/Nyasa, Kariba, Victoria, Albert, Edward, Cahora Bassa and Kivu. Recommendations are made for future action in the case of each of these lakes.

Geographic: East Africa
Water Body: LK

56. Malzy, P. 1946. Les Bozos du Niger et leurs modes de peche (Region de Diafarabe). In: Bulletin Institut Français d'Afrique Noire. Dakar, Senegal. 8: (1-4). pp. 100-132.

Geographic: Niger
Water Body: RV

57. McGoodwin, J. R. 1984. Some examples of self-regulatory mechanisms in unmanaged fisheries. In: FAO Fisheries Report No. 289, vol. 2. pp. 41-61.

Reviews a variety of indigenous and/or traditional mechanisms of self-regulation employed in unmanaged fisheries and discusses these mechanisms with regard to their possible relevance and efficiency in future policies for the management and development of small-scale fishermen and fisheries.
Geographic: Global
Water Body: GL

58. Mokhohlane, B. J. T. 1987. The development and management of fisheries in small water bodies in Lesotho. CIFA/87/SYMP./18. FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Outlines the government's objectives for the short- and medium-terms management of small water bodies through training and participation of peasant fishermen and the development of techniques needed to establish integrated farms.

Geographic: Lesotho
Water Body: IF

59. Mulala, S. A. 1986. Stocks management policies as related to the development of small-scale fisheries in Zambia. In: Proceedings of the International Conference of the Groupe d'étude des Ressources Maritimes (GERMA) on Small-Scale Fisheries and Economic Development and the Third Biennial conference of the International Institute of fisheries Economics and Trade (IIFET) on Fisheries Trade, Development and Policies. University of Quebec at Rimouski, Canada. 10-15 Aug. 1986. pp. 961-966.

Outlines the different regulatory measures and discusses their effectiveness. States that the system of decentralization confers more management responsibility on the local people.

Geographic: Zambia
Water Body: IF

N

60. Nimtz, M. 1974. Decision-making in the fishing industry in Bagamoyo, Tanzania. Unpublished Ph.D. dissertation Indiana University, USA.

Geographic: Tanzania
Water Body: GL

61. Nimtz, M. 1973. Factors in decision-making among contemporary fishermen of Bagamoyo, Tanzania. Prepared for the annual Meeting of American Anthropology Association, New Orleans, USA. 1973.

Geographic: Tanzania
Water Body: GL

O

62. Odoi-akersie, W. 1984. Freshwater fisheries planning and management in English-speaking West African countries, i.e. Cameroun, Nigeria, Ghana, Liberia, Sierra Leone, and The Gambia. Report prepared for FAO, Rome. (Mimeo.).

Geographic: West Africa/Cameroun/Nigeria/Ghana/Sierra Leone/ The Gambia
Water Body: GL

63. Odoi-Akersie, W. 1978. Fishery resource management and development planning in Ghana. FAO, Rome. Prepared for the CIDA/FAO/CECAF Workshop on Fishery Development Planning and Management. Lome, Togo. 6-17 Feb. 1978.

Presents an overview of the fishing industry in Ghana with emphasis on various aspects (including traditional) of resource management and development planning.

Geographic: Ghana
Water Body: GL

64. Okaronon, J. O. 1987. Development and management of fisheries in Small water bodies of Uganda with particular reference to Lake Wamala. CIFA/87/SYMP./12 FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Discusses the effects on the fisheries of small water bodies of the failure to put into practice management measures established by various communities.

Geographic: Uganda
Water Body: LK

P

65. Palm, R. 1987. Management of community small water bodies for fish production in Africa. CIFA/87/SYMP./6. FAO, Rome (Draft). Prepared for the Symposium on the development and Management of Fisheries in small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Analyzes the information on the history, construction and management of community small water bodies in Africa for fish production. Presents four case studies and gives reasons for the failure of some community fisheries and aquaculture activities.

Geographic: Africa
Water Bodies: IF/IA

66. Panayotou, T. 1982. Management concepts for small-scale fisheries: economic and social aspects. FAO Fisheries Technical Paper No. 228. FAO, Rome.

Discusses the potential which a revival of traditional property rights holds for small-scale fisheries management and reviews four cases in Brazil, Côte d'Ivoire, Japan and Sri Lanka.

Geographic: Côte d'Ivoire
Water Body: GL

67. Pauly, D. 1987. On reason, mythologies and natural resource conservation. In: NAGA, The ICLARM Quarterly 10:4, Oct. 1987. pp. 6-7.

Describes traditional management practices in two fishery situation: Sakumo Lagoon, Ghana and The Northern (Biscayan) "Right" Whales in Europe.

Geographic: Ghana
Water Body: LG

68. Price, T. L. 1987. Burkina Faso: Mise en valeur globale de la pisciculture. Rapport prepare pour le Projet Aménagement Piscicole et Renforcement de l'encadrement dans la zone du Sourou. FAO/TCP/BKF/4511 (T). FAO, Rome.

Presents the findings of a study on socio-economic aspects of the Sourou population with respect to development of fisheries and aquaculture activities, including details of exploitation and management systems.

Geographic: Burkina Faso
Water Body: IA

Q

69. Quinn, N. R. 1971. Mfantse fishing crew composition: a decision making analysis. Unpublished Ph.D. dissertation. Stanford University, USA.

Geographic: Ghana
Water Body: CM

R

70. Reed, W. 1967. Notes on swamp fisheries management. Prepared for Training Course on Swamp Fisheries Management. Lokoja, Nigeria. March 1967 (Mimeo.).

Describes the various management methods used by traditional fishermen in the northern region of Nigeria and shows how these methods result in increased production.

Geographic: Nigeria
Water Body: SW

71. Rouch, J. 1950. The Sorkwa, Nomad fishermen of the middle Niger. In: Farm and Forest, 10: pp. 36-53.

Geographic: Niger
Water Body: RV

72. Ruddle, K. 1986. Customary law and lore of the sea. In: NAGA, The ICLARM Quarterly, 9:3, July 1986. pp. 3-4.

Discusses how customary sea tenure and traditional knowledge of marine resources are applied to the management of fisheries.

Geographic: Global
Water Body: CM

S

73. Sai, F. A. 1973. Participation of women in the traditional fishing industry. Fish Phase, Ghana Government/IDRC Fisheries Project: Socio-economic studies, ISSER.
Geographic: Ghana
Water Body: GL

74. Scudder, T. 1960. Fishermen of Zambegi. An appraisal of fishing practice and potential of The Valley Tonga. Rhodes-Livingstone Institute Journal, 27: pp. 41-49.

Geographic: Zimbabwe
Water Body: RV

75. Scudder, T. and T. Conelly. 1985. Management systems for riverine fisheries. FAO Fisheries Technical Paper No. 263. FAO, Rome.

Outlines the scope for building on traditional practices through the participation of traditional fishing communities, as a means of improving the quality of river fishery management with two case studies from the Amazon and the Zambesi. Certain types of traditional management strategies are examined and assessed for their future utility.

Geographic: Zambia/Zimbabwe
Water Body: RV

76. Shimang, G. N. 1987. The development and management of fisheries in small water bodies in Nigeria. CIFA/87/SYMP./21. FAO, Rome (Draft). Prepared for the Symposium on the Development and Management of Fisheries in Small Water Bodies. Accra, Ghana. 7-8 Dec. 1987.

Presents the policies, objectives and strategies for fisheries development and management in small water bodies and outlines the role of the various institutions related to fisheries.

Geographic: Nigeria
Water Body: IF

T

77. Thompson, D. B. 1984. Fishermen and fisheries management. FAO Fisheries Report No. 289, Vol. 2, pp. 21-39.

The paper deals with the attitudes and responses of fishermen and fishing communities to fishery regulatory measures. The importance of fostering good relations with fishermen and of involving them in the decision making process is emphasized.

Geographic: Global
Water Body: GL

78. Weigel, J. Y. 1985. Traditional Management of some lagoons of the Gulf of Guinee (Ivory Coast, Ghana, Togo, Benin). FAO Fisheries Circular No. 790. FAO, Rome.

Describes the diversity of contexts in which traditional management is practised in six groups of lagoon systems. Identifies the conditions which promote the transition of traditional management forms towards a modern type of management.

Geographic: Côte d'Ivoire/Ghana/Togo/Benin
Water Body: LG

79. Weigel, J. Y. 1985. The management of Ivory coast lagoon fisheries: context, evolution and perspectives FAO/CECAF Workshop. Lome, Togo. 20-29 Nov. 1985.

Describes the traditional fisheries management practices and the transition to modern management methods.

Geographic: Côte d'Ivoire
Water Body: LG

80. Welcomme, R. L. 1985. The effects of the Sahelian drought on the fishery of the central delta of the Niger River. In: FAO Fisheries Report No. 360. FAO, Rome. pp. 52-61.

Presents evidence of overfishing and suggests that improved management might result from re-establishment of traditional practices in consultation with the local fishing communities.

Geographic: Mali
Water Body: RV

81. Welcomme, R. L. (Compiled) 1979. Fishery management in large rivers. FAO Fisheries Technical Paper No. 194. FAO, Rome.

Presents the discussions at the Expert Consultation on Fishery Management in Large Rivers (Rome, 13-17 Nov. 1978) including the case histories and background documents.

Geographic: Nigeria
Water Body: RV

82. Welcomme, R. L. and H. F. Henderson. 1976. Aspects of the management of inland waters for fisheries. FAO Fisheries Technical Paper No. 161. FAO, Rome.

Assembles and summaries the elements involved with the management of inland water bodies for various uses together with the basic management techniques available.

Geographic: Global
Water Body: IF

83. Willoughby, N. C. 1979. African freshwater fisheries and their management. In: Fisheries Management Report, 10:4, pp. 159-168.

Discusses the problems in the management of African rivers, floodplains and lakes. Briefly describes the self regulatory mechanisms in traditional fisheries.

Geographic: Africa
Water Body: RV/FP/LK

84. Willoughby, N. C. and R. S. Walker. 1978. The traditional fishery of the lower Shire Valley, Malawi. In: CIFA Technical Paper No. 5. FAO, Rome. pp. 288-295.

Discusses the size and distribution of the traditional fishery in relation to the management of the fishery.

Geographic: Malawi
Water Body: RV

(NON-AFRICAN)

A

85. Aguero, M. N. and B. Lockwood. 1986. Resource management is people management. Presented at the First Asian fisheries Forum. Manila, Philippines. 23-31 May 1986.

Discusses the nature and character of traditional management problems. Argues for an integrated approach to management and presents the basic requirements for effective fisheries management.

Geographic: Philippines
Water Body: GL

86. Ahmed, A. K. M. 1987. Fisheries traditions in Bangladesh. In: NAGA, The ICLARM Quarterly, 10:4, Oct. 1987. pp. 8-9.

Describes religious beliefs and traditional fishery management practices of the "Jaladas" in Bangladesh and how the recent intrusion by other groups threatens to destroy these practices and the livelihood of the fishing communities.

Geographic: Bangladesh
Water Body: CM

87. Alexander, P. 1980. Sea tenure in Southern Sri Lanka. In: Maritime Adaptations: Essays on contemporary fishing communities. A. Spoehr (ed.). Pittsburgh: University of Pittsburgh Press. pp. 91-111.

Geographic: Sri Lanka
Water Body: CM

88. Alexander, P. 1980. Customary law and the evaluation of coastal zone management. In: ICLARM Newsletter, 3:2, April 1980. pp. 8-9.

Gives an account of the customary law governing the operation of fishing gear in Southern Sri Lanka and explains why new innovations by the government failed. Argues that customary tenure systems and conservation practices in traditional societies should provide the basis for modern management.
Geographic: Sri Lanka
Water Body: CM

B

89. Bailey, C. 1982. Natural resource management: a basis for organization of small-scale fishermen. ICLARM Rural Development Participation Review, 3:2, 1982. pp. 19-22.

Gives details of the small-scale fishery of San Miguel Bay, Philippines and describes the role of local organizations in resource management.

Geographic: Philippines
Water Body: CM

90. Berkes, F. 1986. Local-level management and the commons problems: a comparative study of Turkish coastal fisheries. In: Marine Policy, 10:3, July 1986. pp. 215-229.

Discusses the merits of local-level arrangements and rules for the allocation and management of fishery resources in the Aegean and Mediterranean regions of Turkey.

Geographic: Turkey
Water Body: CM

91. Bojos, R. M. Jr., A. Ansula, G. Juanich, R. Arambulo and F. V. Vusse. 1987. The CVRP-I experience in country-based coastal fishery rehabilitation. Prepared for the National Workshop of Fisheries Policy and Planning. Baguio City, Philippines. March 17-20 1987.

Discusses the effects of continuing degradation of coastal waters and presents three strategies that can make traditional fisheries management practices more efficient.

Geographic: Philippines
Water Body: CM

C

92. Comitas, L. 1962. Fishermen and cooperation in rural Jamaica. Unpublished Ph.D. dissertation. University of Columbia, USA.

Geographic: Jamaica
Water Body: GL

D

93. Dahl, C. 1988. Traditional marine tenure: a basis for artisanal fisheries management. In: Marine Policy, 12:1, Jan. 1988. pp. 40-48.

Based on research conducted on the traditional tenure systems of four Micronesian Atolls, this article presents and analyzes five social conditions thought to be crucial in the maintenance of these systems.

Geographic: Micronesia
Water Body: LG

H

94. Hannesson, R. and J. Kurien. 1988. Studies on the role of fishermen's organizations in fisheries management. FAO Fisheries Technical Paper No. 300. FAO, Rome.

Contains two papers: one discusses the pros and cons of giving fishermen's organizations specific roles in fishery management. The second discusses traditional fishing practices, right of access to the sea and resource conservation methods in the Indo-Pacific region.

Geographic: Indo-Pacific
Water Body: GL

J

95. Johannes, R. E. 1987. Traditional beliefs and fisheries management in Oceania. In: NAGA, The ICLARM Quarterly 10:4, Oct. 1987. p. 5.

Briefly describes traditional management practices and advocates for their inclusion in schools' curricula to respond to the needs of the societies.

Geographic: Oceania
Water Body: GL

96. Johannes, R. E. 1982. Traditional conservation methods and protected marine areas in Oceania. In: AMBIO, 11: pp. 258-261.

Geographic: Oceania
Water Body: CM

97. Johannes, R. E. 1980. Working with fishermen to improve coastal tropical fisheries and resource management. Second International Symposium on Biology and Management of Tropical Shallow Water Communities (Coral Reefs, Bays and Estuaries). Papua New Guinea. 20 July 1980. Also, In: Maritime Science, 31:3.

Describes local traditional conservation practices of continuing value and justifies why tackling resource management problems at the village level should be encouraged.

Geographic: Papua New Guinea
Water Body: CR/ES/BS

98. Johannes, R. E. 1978. Traditional marine conservation methods in Oceania and their demise. In: Annual Review of Ecology, 9: pp. 349-364.

Geographic: Oceania
Water Body: CM

K

99. Kurien, J. 1986. Fishworkers participation in fisheries development and management: a third world perspective. In: Proceedings of the International Conference of the Groupe d'Étude des Ressources Maritimes (GERMA) on Small-Scale Fisheries and Economic Development and the Third Biennial Conference of the International Institute of Fisheries Economics and Trade (IIFET) on Fisheries Trade, Development and Policies. University of Quebec at Rimouski, Canada. 10-15 Aug. 1986. pp. 1139-1144.

Focuses on the concrete changes needed in structure and organization to ensure that the participation of fishworkers is not only symbolic but a real instrument in creating just, truly participatory and sustainable management of fisheries.

Geographic: India
Water Body: GL

M

100. Morauta, L. 1982. Traditional conservation in Papua New Guinea: implications for today. J. Pernetta and W. Heaney (eds.). Institute of Applied Social and Economic Research, Boroko.

Geographic: Papua New Guinea
Water Body: GL

N

101. Nagata, S. 1980. Technology, peasant fishery and the "Tragedy of the Commons" (Southeast Asia). Unpublished masters thesis.

Geographic: Asia
Water Body: GL

O

102. Ondam, B. 1977. Four Thai fishing communities: livelihood and problems. In: Small-scale Fisheries Development Social Science Contribution. B. Lockwood and K. Ruddle (eds.). Honolulu: East-West Center. pp. 75-85.

Geographic: Thailand
Water Body: CM

P

103. Polunin, N. V. C. 1983. Do traditional marine reserves conserve? A review of Indonesian and Papua New Guinea evidence. Prepared for the International Ethnological Symposium. Osaka, Japan. Nov. 1983.

Evaluates the concept of "a traditional marine conservation ethic" existing among people of both countries. Asserts that traditional tenure exists for gain and not for restraint.

Geographic: Indonesia/Papua New Guinea
Water Body: CM

R

104. Rao, P. S. 1986. Alternative property rights arrangements in marine fishing. In: Proceedings of the International Conference of the Groupe d'Étude des Ressources Maritimes (GERMA) on Small-scale Fisheries and Economic Development and the Third Biennial Conference of the International Institute of Fisheries Economics and Trade (IIFET) on Fisheries Trade, Development and Policies. University of Quebec at Rimouski, Canada. 10-15 Aug. 1986. pp. 485-490.

Discusses the concept of property rights in marine waters and proposes dividing sea areas into manageable plots to individuals or groups of individuals.

Geographic: India
Water Body: CM

105. Ruddle, K. and R. E. Johannes (eds.). 1985. The traditional knowledge and management of coastal systems in Asia and the Pacific. UNESCO, Jakarta.

Geographic: Asia/Pacific
Water Body: CM

V

106. Vusse, F. V. 1985. Toward community-based municipal fisheries management. In: Walayan Newsletter, 2:3 & 4. (Bimonthly publication of the Central Visayas Regional Project Office), Mandue City, Philippines.

Discusses the factors leading to the depletion of fishstocks in the project area and suggests ways in which local authorities together with coastal dwellers can act to protect the environment.
Geographic: Philippines
Water Body: CM

W

107. Wass, R. C. 1980. The shoreline fishery of American Samoa - past and present. UNESCO Seminar on Marine and Coastal Processes in the Pacific Motupore Island (Papua New Guinea). 14 July 1980.

Examines current and traditional fishing practices in American Samoa and discusses the changes that have taken place.
Geographic: American Samoa
Water Body: CM

5. GEOGRAPHIC INDEX

Note: The geographic boundaries represented in this bibliography are those existing at the time of preparation of the report and not when the entries were originally published.

AFRICAN

AFRICA: 1, 2, 3, 5, 6, 8, 25, 65, 83.

BENIN: 47, 78.

BURKINA FASO: 68.

CAMEROUN: 20, 62.

IVORY COAST: 7, 27, 33, 40, 53, 66, 78, 79.

EAST AFRICA: 31, 55.

THE GAMBIA: 62.

GHANA: 13, 21, 23, 28, 29, 49, 51, 62, 63, 67, 69, 73, 78.

GLOBAL: 4, 14, 15, 16, 37, 38, 42, 45, 48, 57, 72, 77, 82.

LESOTHO: 58.

LIBERIA: 62.

MALAWI: 10, 84.

MALI: 36, 80.

MOROCCO: 40.

NIGER: 35, 43, 56, 71.

NIGERIA: 22, 30, 40, 46, 62, 70, 76, 81.

RWANDA: 25.

SENEGAL: 18, 40.

SIERRA LEONE: 32, 44, 62.

SOUTHERN AFRICA: 12.

SUDAN: 26.

TANZANIA: 17, 24, 52, 60, 61.

TOGO: 78.

TUNISIA: 11.

UGANDA: 34, 64.

WEST AFRICA: 19, 32, 39, 41, 50, 51, 62.

ZAMBIA: 54, 59, 75.

ZIMBABWE: 9, 54, 74, 75.

NON-AFRICAN

AMERICAN SAMOA: 107.

ASIA: 101, 105.

BANGLADESH: 86.

INDIA: 99, 104.

INDONESIA: 103.

INDO-PACIFIC: 94.

JAMAICA: 92.

MICRONESIA: 93.

OCEANIA: 95, 96, 98.

PACIFIC: 105.

PAPUA NEW GUINEA: 97, 100, 103.

PHILIPPINES: 85, 89, 91, 106.

SRI LANKA: 87, 88.

THAILAND: 102.

TURKEY: 90.

6. WATER BODY INDEX

BAYS (BS): 34, 97.

COASTAL/MARINE (CM): 2, 13, 17, 19, 20, 21, 22, 28, 32, 40, 44, 47, 49, 69, 72, 86, 87, 88, 89, 90, 91, 96, 98, 102, 103, 104, 105, 106, 107.

CORAL REEF (CR): 97.

DELTAS (DL): 46.

ESTUARIES (ES): 38, 39, 97.

FLOOD PLAINS (FP): 83.

GENERAL (GL): 4, 5, 6, 8, 14, 15, 16, 18, 37, 42, 45, 48, 50, 51, 53, 57, 60, 61, 62, 63, 66, 73, 77, 85, 92, 94, 95, 99, 100, 101.

INLAND/AQUACULTURE (IA): 65, 68.

INLAND/FRESHWATER (IF): 1, 3, 23, 25, 41, 52, 58, 59, 65, 76, 82.

LAGOONS (LG): 7, 11, 27, 33, 38, 39, 67, 78, 79, 93.

LAKES (LK): 10, 11, 24, 26, 31, 43, 54, 55, 64, 83.

RIVERS (RV): 10, 12, 30, 35, 36, 43, 46, 56, 71, 74, 75, 80, 81, 83, 84.

SWAMPS (SW): 9, 70.

WETLANDS (WL): 29.